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ABSTRACT

The applicability of phonics generalizations, particularly the rule "When two vowels go walking the first one does the talking and the second one is silent," is examined in this paper. The first section reports on a study of the applicability of the two vowel rule to words in first- and second-grade basal readers and on a core vocabulary list; the words studied were those with vowel combinations involving the vowels a, e, i, o, and u. The findings presented indicate that the rule was applicable only 41% of the time. The second section reviews previous research that also indicated the limited applicability of the two vowel rule, as well as research on such topics as teachers' knowledge of phonics generalizations, the usefulness of other generalizations, methods of teaching about phonics, and the relationship of phonics knowledge to reading achievement. Appendixes list the 958 words with consecutive vowels found in first-grade and in second-grade basal readers, divided according to whether or not the two vowel rule proved applicable to them. (GW)

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WHEN THERE ARE TWO VOWELS SIDE BY SIDE, DOES THE RULE "WHEN TWO VOWELS GO WALKING...," APPLY MORE OFTEN THAN NOT TO WORDS FOUND IN FIRST AND SECOND GRADE BASAL READING SERIES?

by

Ruth Vine

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INTRODUCTION

Research by several eminent people in the field of reading has raised some question as to the validity of the vowel digraph generalization, "When two vowels go walking the first one does the talking." Although teachers have been teaching this generalization for many years, studies by Clymer, Emans and Bailey seem to refute the applicability of this rule. These studies have been done on words found in the vocabulary of basal readers and word lists of grades one thru three and grades one thru six.

The study by Clymer (1963) of words used in the primary grades, using four basal readers, showed that this generalization had only 45 percent utility.

Bailey's study (1969) of words used in grades one thru six, using eight basals, showed this generalization to be of use 34 percent of the time.

Eman's (1967) focus was on words used beyond the primary level and found this rule applicable only 18 percent of the time.

Burmeister (1968) concentrated on words used at the high school level, using the Teacher's Word Book of 30,000 Words to examine the validity of this phonic generalization and found it to have limited utility, especially so in uncontrolled vocabularies above the elementary level.

These studies substantiate the belief that the utility

of the vowel digraph generalization, "When two vowels go walking...," does not apply significantly to the words found in basal readers and word lists although teachers are constantly referring to this rule in their teaching mainly because several teacher's manuals advocate using this generalization.

Since research studies have included grades one thru three and up thru high school, this study will focus on words found in basal readers and word lists of grade one, grade two, and grades one and two combined in order to determine the applicability of the above mentioned generalization.

Should this generalization have wide applicability, teachers can be made aware of the importance of stressing this particular rule in grades one and two. If, on the other hand, the rule has little or no validity teachers should be encouraged to abandon its use based on the research of Clymer, Bailey and Emans who have made educators aware of the futility of teaching this particular generalization in relation to vocabulary found in grades one thru three and grades one thru six.

Publishing companies need to be made cognizant of the applicability (or lack) of this rule in order to make comparable changes in their basal readers and teachers' manuals. Word lists would be modified or expanded upon accordingly.

The vowel letters are usually identified as a e i o u and y and w, however, for this study y and w are not to be considered as vowels since so many of our teachers are not aware of this usage and, therefore, do not teach y and w as vowels. This decision could have significant influence on the results of this study and may be a significant limitation.

HYPOTHESIS

Results of previous studies attest to the premise that the utility of the vowel digraph generalization, "When two vowels go walking...," does not apply significantly to the words found in first and second grade basal readers.

DEFINITIONS

Vowel letters are usually identified as a e i o u and y and w and have a single open vocal sound with no stoppage. However, in this situation the vowel letters are a e i o u.

Vowel digraph is a group of successive vowels whose phonetic value is one sound, as ee in tree (but does not include such patterns as ay, ey, uy, oy, ow, aw, or ew).

Generalization is defined as a principle with general application; the process of drawing a conclusion or concept from a number of specific facts or observations.

Rule is a formal statement which relates one grammatical unit to another.

Application is the use of newly-learned skills in solving problems.

PROCEDURES

In order to secure valid word lists used in current basal readers, eight publishing companies were contacted by letter and were requested to forward lists of words being used in their respective first and second grade basal readers.

Only the Economy and Macmillan Companies had responded with their list of words. Houghton Mifflin Company forwarded several books with no indication of grade levels for these materials. However, upon examination of these books, it was found that only those readers used on the pre-primer and primer levels had been received by this investigator. The basal readers for the Ginn series are labeled according to levels, consequently, the representative of this company was contacted by this author to co-ordinate the levels appropriated to each of the basals with its corresponding grade level.

Since the response from the publishing companies was so limited this investigator reviewed the teacher's manual, or, the student's edition of several series and a listing was made of all words having two vowels adjoining. The Harris Jacobson (1972) Core List was also utilized. Lists were then compiled consisting of words in which the vowel generalization, "When two vowels go walking the first one does the talking and says its name and the second one is silent,"

applied and did not apply. Webster's Encyclopedia of Dictionaries (Allee, 1972) was used for the correct pronunciation. The Thorndike-Barnhart and the i/t/a dictionary (Mazurkiewicz et al., 1965) were used as reference when there was disagreement with the Webster dictionary.

Words used in the student's basal reader were listed in the teacher's manuals of the Harper and Row series. These words were noted and only those words having two vowels side by side were selected and listed according to applicability and non-applicability of the rule. Similar procedure was used for words used in the basal readers of the Houghton Mifflin and Ginn series. The same method was employed with the Economy and Macmillan lists of words.

Only words having the vowel combinations of a, e, i, o and u were selected. Although previous studies had considered y and w as vowels and had used words containing these letters this investigator did not acknowledge y and w as vowels. This decision was decided upon following consultations with teachers in several school districts using various reading series. These educators emphasized only a, e, i, o, and u as vowels. When children were questioned about the vowels, their response also indicated only these letters as being vowels. Some responded with, "...and sometimes y."

Words having two sets of vowels were counted twice and are indicated by (*) in the list of words. If, as in some cases, one of each set of vowels both applied and did not

apply to the rule, then they were noted in each column - such as, league and boathouse.

When there was disagreement by the author as to the pronunciation of the word as expressed in Webster's Encyclopedia of Dictionaries, then both the Thorndike-Barnhart junior Dictionary and the i/t/a/ dictionary were referred to. If both were in agreement with the Webster dictionary then the pronunciation was accepted by the author. On the other hand, if both were in agreement with the author's pronunciation then the word was accepted as applicable. This was indicated by (**).

Words such as: fair, fairy, juicy, upstairs were applicable only according to the i/t/a dictionary, as indicated by (***), and was therefore listed as not applicable. This author questions the reasoning behind Webster's dictionary in pronouncing stairs with a long a, yet upstairs was pronounced upsterz.

Words such as sea otter and food coloring were not counted since sea and food had been counted however, hyphenated words were counted. Hyphenated words such as: good-by, good-for-nothing, good-day, good-for-something artificially inflate the count as do word variants among such qu words as squeeze, squeezed, squeezes, squeak, squeaky, squeaked. Compound words like doghouse, houseboy, lighthouse, firehouse, doorbell, doorstep, doorway added to the number of words not applicable.

Some words are effected by l and r, as in real (rē əl)

and pair (pâr) and were, therefore, not applicable to the rule.

Proper nouns, and possessive, when used in another form, were not listed.

Ginn's list of words in their teacher's manual included those words used on the kindergarten level and were included in this study as first grade words.

Tears was counted as not applicable since Webster and i/t/a dictionaries did not describe the pronunciation as the long e sound. However, Thorndike-Barnhart distinguished it from tears (to pull apart) and did exhibit the tēr sound.

RESULTS

The table on page 8 shows the amount of times each vowel combination appears as applicable and not applicable to the rule. The table shows that these vowel combinations apply to the rule only 41 percent of the time.

From a study of 958 words having two vowel combinations the following tally resulted.

Vowel combination ea applied to the rule, "When two vowels go walking, the first one does the talking," 134 times and did not apply 67 times. Therefore, ea can be said to apply 67 percent of the time.

Vowel combination ee applied 120 times out of 121 for a percentage of applicability of 99 percent.

Vowel combination ai applied 72 times out of a total of 89 words. Therefore, ai appears to apply 81 percent of the time.

TABLE 1

APPLICABILITY OF THE TWO VOWEL RULE TO THE WORD SAMPLE

Vowel Combinations	Applicable	Not Applicable
ea	134	67
ee	120	1
ei	3	10
eo	1	5
eu	0	1
oa	34	5
oe	5	11
oi	0	22
oo	0	157
ou	4	121
ua	0	13
ue	1	17
ui	0	24
ai	72	17
au	0	20
ia	0	12
ie	20	37
io	0	24
	394	564
Total Words	958	

Vowel combination oa applied 34 times out of a total of 39 words, indicating an 87 percent applicability.

The combination ou did not apply to the rule 121 times, or, 97 percent of the time, and did apply four (4) times. The oo combination did not apply to the rule in any of the 157 words, or, 100 percent of the time.

CONCLUSIONS AND IMPLICATIONS

This study tends to substantiate the findings of previous studies done by Clymer and others regarding the limited value of teaching the two vowel rule.

Publishers of basal readers who have been advocating teaching this rule need to be made aware of the futility of this, and should, therefore, abandon recommending the reinforcement of this generalization in their teachers' manuals.

Teachers who are now teaching this rule should be made to realize the importance of modifying the emphasis placed on this generalization. According to the results of this study, only four sets of vowels, out of eighteen combinations go along with the two vowel rule. These vowel combinations - ea, ee, ai, and oa can be taught as usually applying to the rule. The vowel pattern ea with 67 percent utility (less than the 75 percent utility recommended by Clymer) should be noted as having exceptions in at least 3 out of 10 words.

Based on the results in table 1 the vowel pattern ou and oo should be taught separately as vowel digraph or

diphthong.

Although this study was done fifteen years after Clymer's study of the utility of phonic generalizations, and the reading series have supposedly been updated, findings have shown that the rule, "When two vowels go walking, the first one does the talking" does not apply more often than it does apply and that publishers and educators are found to be still teaching this rule.

Dr. Albert Mazurkiewicz of Kean College and Dr. Marion Kimberly of Rutger's University have stressed the limited applicability of this rule in their reading courses. Hopefully, their students will transmit this knowledge to their colleagues so that others will be made aware of this information so as to prevent frustration among young learners by editing published mat rial to agree with reality.

PHONIC GENERALIZATIONS: A SURVEY OF RELATED LITERATURE

What do teachers and prospective teachers know about phonics generalizations? A study conducted by Aaron (1960) showed the difference between experienced and inexperienced teachers in their knowledge of phonics principles.

Nonsense words were used in a test consisting of 60 multiple choice items. One of the eight principles involved stated, "When two vowels come together, the first is usually long and the second is usually silent." This test was administered to teachers and teachers-in-preparation enrolled in a course on the teaching of reading being taught at the University of Georgia between March 1957 and December 1958.

It appears that experienced teachers seemed to know more about the principles of phonics than inexperienced teachers, having possibly learned them from teaching them to children, and primary teachers did not necessarily score any higher than teachers on other levels.

Since so few of the people taking the test were knowledgeable of the phonics principles, it was suggested that a course in the teaching of reading should include not only the teaching of phonics generalizations, but also the principles themselves. Thus teachers should probably know about such studies described below but, more importantly, be taught and learn what phonics generalizations are of value.

A study done by Oaks (1952) concerning the vowel situation in a primary vocabulary included the vowel

principles with the incidence of their applications and exceptions.

One of the principles, "When there are two adjacent vowels in a syllable, the first vowel has its 'long' sound and the second vowel is silent" was classified Principle VI, Type A (vowel digraph). When stating the sequence for the introduction of the phonic principles from primer level to third reader level she did not list this particular principle because of the "high percentages of exceptions."

At the time of Oaks' study very few studies had been conducted on vowel situations at the primary level. She mentioned one study done by Cordts in 1925 of the vocabularies of primary readers dated 1892 thru the early 1900's and the need for an investigation of "newer" readers which this study (Oaks') hoped to accomplish.

Clymer (1963) did a study of generalizations used in the primary grades using the manuals of four widely used sets of readers for the source of these phonic generalizations. A word list of 2600 words was developed, to test these generalizations, from the four basic series plus the words from the Gates Reading Vocabulary for the Primary Grades.

Conclusions drawn from Clymer's study seemed to indicate we may have been taking for granted, and teaching many generalizations which were found to have only limited utility.

One in particular which we are interested in "When

there are two vowels side by side, the long sound of the first one is heard and the second is usually silent" appears to have only 45 percent utility.

The problem of <u>how</u> to teach phonics so it is a more effective aid to reading was studied by Sabaroff (1963) The methods used were systematic phonics, functional phonics and independent pleasure reading.

When being taught vowel digraphs with the systematic method, the children were asked to remember the two letters as one sight-sound element such as: <u>ai</u> together has the long <u>a</u> sound; <u>ea</u> together has the long <u>e</u> sound, rather than by the rule, "When two vowels come together, the first one has its long sound and the second one is silent."

Sabaroff observed that the children were able to use these sight-sound elements in attacking new words, while the rule, although memorized, was not applied in reading.

Results of this study suggested that more phonetic elements were mastered by the systematic method and this system was better for the low achievers, whereas, the average and above average achievers did better with the functional phonics.

Burrows and Lourie (1963) investigated the "two vowels together" rule using the Rinsland list of five thousand words.

In their conclusion they recommended teaching the child to be aware of what vowel sound is used in the common words he meets. He can then receive help from the con-

text and from consonants. He will learn to analyze new words when his reading vocabulary increases and he begins to realize that the vowel sounds vary.

In what order should phonics rules be taught? Using the first 300 Instant Words, Fry (1964) believes the major rules could be covered by the end of first grade and the minor rules by the end of second grade. Most major reading text series cover these rules about one year later.

One of the major rules as stated by Fry, "When two vowels are together, the first is long and the second is silent" should be taught as vowel digraphs: ai, ay, ea, ee, ow(own), oa, ue(due) since this rule has so many exceptions.

The statement, "When two vowels appear together they usually represent one sound" was examined by Burmeister (1966) using the Thorndike and Lorge Teacher's Word Book of 30,000 Words. She found this to be true 84.5 percent of the time. Only one vowel pair - ia (giant, liable, piano) was an exception.

However, she found the phonic generalization, "When two vowels are together, the first is ong and the second is silent" to be extremely limited in usefulness in uncontrolled vocabularies above the primary level.

Burmeister (1968) concluded that vowel pairs tend to fall into four categories:

1. The first vowel may dominate (ai, ay, ea, ee, oa, ow, usually).

2. The two vowels may blend (au, aw, oi, oo)
3. A new sound may be created: ei=a, ou=e, ey=i, ew=u
4. Vowel pairs may separate.

She suggested that the second most common sounds of ea and ou be taught; that au, aw, oi, and oy be taught as diphthongs and, children should be taught to try several specific sound when ei or ie are in a word.

A great deal of time is spent teaching vowel generalizations to pupils.

According to a study conducted by Hillerich (1967), comparing the skill of children who had been taught vowel generalizations with the skill of children who had not had any previous knowledge of vowel generalizations, it was noted that the children who scored higher on the vowel nonsense test had received instruction in vowel generalizations. However, the children who were taught vowel generalizations scored lower on a reading achievement test than the children who were not taught about vowels.

Results of the scores indicated that experience in reading helped in the better scoring on the vowel test.

From research studies reviewed by Hillerich (1974) he has concluded that generalizations about vowels can be "grouped into two categories: generalizations which hold true most of the time, but which include too few words to be worth teaching, and those which apply to many words but which are so unreliable that they are not worth teaching."

He, therefore, advocates examining our language and to teach reading thru reading instead of thru learning about generalizations.

Emans (a,1967) used a random sample of ten percent of the words (1,944) used beyond the primary level (grade four) in The Teacher's Word Book of 30,000 Words by Thorndike and Lorge for his study. His procedures were the same as those used by Clymer.

Conclusions showed only 18 percent utility for the generalization, "When there are two vowels side by side, the long sound of the first one is heard and the second one is usually silent."

Emans stated that no differentiation between primary and secondary generalizations were made by Clymer even though, according to Emans, the manner and order in which generalizations are applied may be as important as the generalizations themselves. He believes that different generalizations should be taught at different grade levels, since, some were found to apply on the primary level yet failed to be useful at a later level, and some which were found to be useful beyond the primary level were found not to apply at the earlier level.

Emans' (b,1967) article suggests modifications and substitutes for some of the commonly taught phonic generalizations. He believes that weaknesses in existing practices should be eliminated if we are to help children to learn to read and by simply rewording some generalizations which

already have a fairly high percent of utility we can increase this utility even more.

Emans states Clymer's rule "When there are two vowels side by side..." with the following modifications:

a. When the first vowel in a word is a and the second is i, the a is usually long and the i is silent.
b. When the first vowel is o and the second is a, the o is usually long and the a is silent.
c. Words having double e usually have the long e sound.
d. The letters io usually represent a short u sound (nation).
e. The letters oo usually have the long double o sound (food) or the short double o sound (good). They are more likely to have the double o sound as in food.
f. The vowel combination ui has a short i sound.

Baily did a study of the utility of phonic generalizations in grades one thru six (1967) after the disturbing results of Clymer's study was reported for grades one thru three. She used all of the vocabulary words from eight basal reading series eliminating place names, proper names and foreign words, and only used those words which had appeared in 2 or more of the series.

Her first generalization, "When there are two vowels side by side, the long sound of the first vowel is heard, and the second vowel is usually silent" was found to have only thirty-four percent utility and, according to Bailey, "should be thoughtfully considered by all persons concerned with reading instruction."

Cycles of interest in phonics have been going on for many years and, according to Lerner (1969), there has been a great surge upward since the publication of Jeanne Chall's Learning To Read: The Great Debate. This has also brought

on a great increase in phonics materials and writings in this area.

In this report Lerner comments on the utility of phonics generalizations according to pronunciation in Webster's Third New International Dictionary which is based on "the standard speech of educated Americans," rather than the speech pattern of an "English-speaking world" reflecting British pronunciation. She comments on the importance of being aware of new knowledge (such as Webster's Third) and continuously up-dating our phonics research.

Maresh's study (1969) differed from Clymer's and Bailey's because she reviewed each of the series separately and then compared these series. Also, she evaluated two dictionaries as sources of pronunciation. A 70 percent minimum was used to evaluate the utility of the generalizations. The American Book Company Series, the Ginn and Company Series and the Allyn and Bacon Incorporated Series fell below this guide line and only the Scott Forsman Company reached this minimum of 70 percent. The Thorndike-Barnhart Dictionary resulted in a higher percent of utility than the Webster's Elementary Dictionary when used for proper pronunciation.

Maresh concluded that improvements be made in the re-wording and the reorganization of the use of phonic generalizations, such as: In the generalization that if two vowels occur together, the first vowel is long and the second vowel is silent, the generalization should state that

this applies to the vowel combinations of ai, ay, oa, ee, ie, oa, oe.

A test was given to 240 Finnish children, where the orthography is highly regular, to find out how well they learn letter-sound correspondences. How this ability relates to socioeconomic status and to reading ability was studied by Venezky (1972). These Finnish children were tested for letter-sound generalizations with 25 synthetic words constructed to look like Finnish words and containing the full range of correspondences which occur in Finnish orthography.

Results indicated that the ability to generalize letter-sound correspondences does not guarantee high ability in reading.

Groups of fourth grade students were instructed by teachers who were proficient in phonics and groups were taught by teachers not proficient in phonics to determine the difference in pupils' achievement when students are divided into groups based on the number of years of teaching experience and the number of college or graduate reading methods courses of the instructor.

Results indicated that pupils instructed by proficient phonics teachers obtained significantly higher scores than students instructed by non-proficient phonics teachers, and teachers' knowledge of phonics generalizations was significantly related to pupils' achievement in phonics, as was related in a paper by Anderson (1973).

Word recognition is the ultimate goal of phonic generalizations and, as stated by Bukovec (1973) the words "usefulness" and "utility" have been used to refer to a generalization's effectiveness. However, although the generalization may not lead to an exact pronunciation, it may still assist the child in word recognition. Therefore, according to Bukovec, "even those generalizations that have failed to meet the criteria for 'usefulness' as established in earlier research may be presumed to possess an undetermined degree of utility for leading young readers to word recognition." Together with context clues, words pronounced only partially correct could lead to word recognition in fifty percent of the cases.

His proposed formula: Estimated utility for word recognition = [C+(E/2)] /I where C represents Conformations, or the total number of instances in which an accurate pronunciation results from the application of the generalization; E represents Exceptions, or the total number of instances in which an inaccurate pronunciation results from the application of the generalization; and I represents Incidence, or the total number of words to which a generalization is actually applied (C+E).

In applying his formula to Clymer's forty-five generalizations Bukovec found between forty-two and forty-four of the generalizations to be useful in achieving word recognition and, therefore, should be taught in the classroom.

REFERENCES

Aaron, I.E. "What Teachers and Prospective Teachers Know About Phonics Generalizations." Journal of Educational Research. 53 (May 1960):323-30.

Allee, John Gage. Webster's Encyclopedia of Dictionaries (1972) Ottenheimer Press U.S.A.

Anderson, Altee McGray. "The Difference Between Pupils' and Teachers' Knowledge of Phonics Generalizations." Ed.D dissertation, University of Southern Mississippi, 1973.

Bailey, M.H. "The Utility of Phonic Generalizations in Grades One Through Six." The Reading Teacher. 20(1967): 413-18.

Bukovec, Joseph A. "Usefulness of Phonic Generalizations: A New Formula." The Reading Teacher (Dec. 1973):270-74.

Burmeister, Lou E. "An Evaluation of the Inductive and Deductive Group Approaches to Teaching Selected Word Analysis Generalizations to Disabled Readers in Eighth and Ninth Grade." Doctoral dissertation, University of Wisconsin, 1966.

_____. "Vowel Pairs." The Reading Teacher. 21 (Feb. 1968):445-52

Burrows, Alvina Trent and Zyra Lourie. "When Two Vowels Go Walking." The Reading Teacher (Nov. 1963):79-82.

Bush, Clifford L, and Andrews, Robert C. Dictionary of Reading and Learning Disabilities Terms. New Jersey: Educational and Psychological Associates Press, 1973.

Clymer, Theodore. "The Utility of Phonic Generalizations in the Primary Grades." The Reading Teacher 16 (January 1963):252-8.

Emans, Robert. "The Usefulness of Phonic Generalizations Above the Primary Grades." The Reading Teacher 20 (February 1967):419-25.

_____. "When Two Vowels Go Walking and Other Such Things." The Reading Teacher 21 (December 1967):262-69.

Fry, Edward. "Frequency Approach to Phonics." Elementary English 41 (November 1964):759-65+.

Willerich, Robert L. "Vowel Generalizations and First-Grade Reading Achievement." Elementary School Journal 67 (February 1967):246-50.

Hillerich, Robert L. "The Truth About Vowels." Paper presented at the annual meeting of the International Reading Association (19th, New Orleans, May 1-4, 1974).

Lerner, Janet W. "The Utility of Phonic Generalizations-A Modification." Journal of the Reading Specialist 8 (March 1969):117-18.

Maresh, Carolyn. "The Utility of Phonic Generalizations: Fact or Folly?" Journal of the Reading Specialist 8 (March 1969):119-21+.

Mazurkiewicz, Albert J. Teaching About Phonics. New York: St. Martin's Press, 1976.

Mazurkiewicz, Albert J., and Tanzer, Harold J. with Sir James Pitman. The i/t/a Handbook for Writing and Spelling (1965):27-50.

Oaks, Ruth E. "A Study of the Vowel Situation in a Primary Vocabulary." Education (May 1952):604-17.

Sabaroff, Rose. "A Comparative Investigation of Two Methods of Teaching Phonics in a Modern Reading Program: A Pilot Study." The Journal of Experimental Education 31 (March 1963):249-56.

Thorndike, E.L., Barnhart, Clarence L. Thorndike-Barnhart Junior Dictionary (1953).

Venezky, Richard L. "The Letter-Sound Generalization of First, Second, and Third Grade Finnish Children." Wisconsin University, Madison. Research and Development Center for Cognitive Learning, Office of Education Washington, D.C. Bureau of Research. (March 1972).

APPENDIXES

APPENDIX A

Words Found in First Grade Basal Readers

Applicable	Not Applicable
afraid	about
air	afternoon
airplane	again
airport	ahead
asleep	around
beach	balloon
beak	bear
beam	beautiful
beans	because
beanstalk	been
beat	birdhouse
bee	blooming
bees	blue
beets	board
bleeding	boiling
boat	boo
	*boo-hoo
	book
	books
	boots
	bread
	break
	breakfast
	brought
	build
	building
	buildings
chain	cloud
chair	clouds
cheese	clue
cleaned	clubhouse
cleaning	cook
cloverleaf	cooked
coat	cookie
coats	cooks
creak	cool
cream	cornfield
cried	could
cries	couldn't
croak	counted
	country
	course

Applicable	Not Applicable
	cutout
dear	dangerous
deep	delicious
deer	dinosaur
die	dial
dream	does
	doesn't
	doing
	door
	doorway
each	eight
ear	enough
ears	
easy	
eat	
eating	
eats	
eel	
feed	floor
feel	flour
feeling	food
feet	foods
float	fool
floated	foot
freezer	football
	found
	four
	friend
	friends
goat	giant
goats	gingerbread
goes	glue
grain	going
green	good
	good-by
	good-day
	good-for-nothing
	good-for-something
	goods
	goose
	great
	ground
	groundhog
	groundhogs
	guarding
	guess

Applicable	Not Applicable
hair	head
hear	henhouse
	heard
	hooray
	hoot
	hooting
	house
	houses
	hurried
	idea
	journey
keep	kangaroo
leap	laugh
leave	laughed
leaves	laughing
lie	learn
loaf	lion
	lions
	look
	looked
	looking
	looks
	loud
	lunchroom
mailman	ma-a-a
mean	make-believe
meat	meadow
meet	mention
	meow
	moo-oo
	moon
	*mountain
	mouse
	mouth
	mushroom
**near	noise
nearly	noisy
neat	notebook
need	
needs	
	ocean
	oil
	ouch

Applicable	Not Applicable
	our
	ours
	out
	outside
paint	pennies
paintbrush	piano
painted	playground
paints	ponies
peanut	poodle
peep	pool
peek	poor
people	pound
pie	
pies	
plain	
please	
	quack
	queen
	quick
	quickly
	quiet
	quit
rain	racoon
rained	read
rains	ready
reach	real
read	really
road	roof
	room
	round
sail	sad-looking
sea	said
seal	school
seat	shoe
seatbelt	shoes
see	shook
seem	should
seen	shout
sees	shouted
sheep	shouting
sleep	someone
sleeping	soon
sleepy	sound
snail	sounds
stairs	soup
steam	south

Applicable	Not Applicable
steel	spoon
straight	squeak
street	squeeze
	squirrel
	stood
	stories
	stout
	suitcase
	sweater
tail	tears
tails	their
tail-wagging	thought
teach	through
teacher	too
teeth	took
three	tooth
tie	touch
toad	true
toast	
trail	
train	
trains	
treatment	
tree	
trees	
treetops	
tried	
untie	***upstairs
	voice
wait	wear
waited	without
wee	wood
weeks	woodpecker
wheat	woods
wheel	would
wheels	wouldn't
**years	you
	you'd
	young

Applicable	Not Applicable
	your yours
	zoo

*counted twice

**see procedures

***see procedures

APPENDIX B

Words Found in Second Grade Basal Readers

Applicable	Not Applicable
afraid	aboard
agree	about
air	admiration
airline	afternoon
airplane	again
although	against
appear	ahead
appleseed	aloud
armloads	already
asleep	applesauce
	arguing
	attention
	*audience
	aunt
	aunty
bait	babies
beams	background
bean	balloon
beans	balloons
beanstalk	bamboo
beast	bathroom
beat	bear
beaver	bears
beavers	beautiful
beef	beauty
beer	because
beetle	bedroom
beets	been
between	being
birdseed	believe
boasted	berries
boathouse	blackboard
boats	bloom
breathe	bloomed
breathing	blue
breeze	blueberry
buffaloes	boar
	board
	boathouse
	boiling
	boo

Applicable	Not Applicable
	book
	books
	bookstore
	boom
	boomed
	boot
	boots
	bought
	bounce
	bounces
	bounded
	boundless
	bread
	breads
	break
	breakfast
	breaks
	breath
	brook
	broom
	brought
	build
	building
	buildings
	built
ceiling	canoe
chain	canoes
chair	captain
chairs	captains
cheating	carpool
cheeks	carriage
cheep	carried
cheer	casually
cheered	caught
cheerful	cereal
cheese	certain
chimpanzee	certainly
clean	check-out
cleaned	chief
cleaners	choice
cleaning	choose
clear	cities
coats	classroom
coffee	cloud
creaky	clubhouse
cream	clue
creature	cock-a-doddle-doo
creek	coin
creeping	coins

Applicable	Not Applicable
creeps	collection
croak	confusion
croaked	construction
	cooed
	cooing
	cook
	cooked
	cookers
	cookie
	cookies
	cooking
	cooks
	cool
	cornfield
	couch
	cougar
	cough
	coughed
	could
	couldn't
	count
	counted
	counter
	country
	countryside
	courage
	course
	cousins
	crouched
	curtain
dear	dandelions
deep	dangerous
deeper	dark-looking
deer	daughter
die	daybreak
died	dead
**disappeared	dialed
dough	diamonds
doughnuts	direction
downstairs	disappoint
downstream	disappointed
dream	does
dreamed	doesn't
dreaming	doghouse
dried	dogwood
dries	doing
	door
	doorbell
	doors

Applicable	Not Applicable
	doorstep
	doorway
	double
	dreadful
	drooped
each	early
eagerly	earn
eagle	earned
ear	earth .
eardrum	*earthquake
ears	eight
easy	eighteen
eaten	electrician
eater	electricians
eats	enemies
eighteen	enough
either	
exclaimed	
explain	
explained	
failed	***fair
**fear	fairy
feat	families
feed	famous
feeding	fault
feel	feather
feeling	feathers
feelings	field
feet	fields
fleet	fierce
flies	firehouse
float	fishook
floated	flood
floats	floor
free	floorman
fried	food
	foods
	foolish
	foot
	football
	forehead
	found
	four
	fourth
	friendly
	friends
	fruit
	fruits

Applicable	Not Applicable
	funny-looking
gee	giant
geese	giants
goat	glacier
goats	gloomy
goes	glue
greedy	good-by
greens	goodness
	good-night
	goose
	great
	great-grandfather
	greatest
	ground
	grounder
	group
	grouping
	grouse
	guard
	guards
	guess
	guessed
	guide
hair	handkerchief
haircuts	hardheaded
heals	haunted
heap	head
hear	headlight
hears	heads
heat	*healthier
hee-haw	heard
heel	heart
heels	heartily
high-heeled	heavy
house boat	hoo
	hook
	hooked
	hooks
	hoot
	hooted
	hound
	hour
	hours
	houseboat
	houseboy
	houses
	hurried
ice-cream	idea

Applicable	Not Applicable
indeed	ideas
	impatient
	indoor
	instead
jeans	join
jeep	joined
	***juicy
keep	
keeper	
keeps	
knee	
knee-high	
kneel	
knees	
laid	language
lead	laugh
leaders	laughed
leaf	laughing
league	laughs
lean	laughter
leaned	laundromat
leans	laundry
leaped	league
leash	learn
least	learned
leave	leather
leaves	leis
leaving	librarian
lie	lighthouse
lies	lion
load	*lookout
loads	loom
	looping
	loose
	loud
	louder
	loudly
maid	makeup
maids	measuring
mail	moon
mailbox	moonlight
mailboxes	*mountain
main	mouse
meals	mousedom
mean	mouth
means	musicians

Applicable	Not Applicable
measles	
meat	
meet	
meeting	
meetings	
moaned	
mohair	
monorail	
multiplied	
nails	national
near	neighbor
nearby	*neighborhood
nearer	neighbors
nearest	nervous
nearly	nice-looking
need	noise
needed	noises
needles	noisy
needs	noodles
nineteen	
oak	oars
	oil
	one-room
	ouch
	ought
	our
	ours
	*outdoors
	outside
	overlooked
paid	***pair
pail	***pairs
paint	pause
painter	patio
painters	peasant
painting	peashooter
paintings	penguin
parakeet	pennies
parakeets	piece
peace	pigeon
peaceful	pigeons
pea	playground
peanut	pleasure
peanuts	pocketbook
peas	poem
peashooter	poet
peeked	point
	pointed

Applicable	Not Applicable
peeping	pointing
peep	points
peeped	poof
people	pool
pie	poor
please	portrait
pleased	pounded
potatoes	pounding
pried	poured
	prettiest
	proud
	proudly
	puppies
	quack
	quacking
	quail
	quart
	quart-size
	queen
	queer
	*question
	*questions
	quick
	quickly
	quiet
	quieter
	quietly
	quilt
	quite
	quitter
rain	racoon
*raincoat	radio
raindrop	read
raining	ready
raised	real
raisins	really
reach	reflection
reached	reservation
read	roof
reading	rooftop
reason	rooftops
remaining	room
repair	rooms
repairing	rooster
repeated	root
rescued	roots
road	rough
roadbed	round

Applicable	Not Applicable
roar	roundest
roared	roundness
	roundup
	route
sailed	satisfaction
sailor	sauntered
sailors	school
scream	*schoolbooks
screamed	schoolgirls
screaming	*schoolhouses
screams	schools
sea	schoolyard
seashells	scientist
seaside	scientists
seat	scurried
seats	search
*seaweed	searched
seed	self-portrait
seeding	self-portraits
seeds	shoe
seeing	shoemaker
seek	shoes
seem	shoeshine
seemed	shook
seems	shoot
seen	shoots
sees	should
seesaw	shoulders
shear	shout
sheared	shouted
shears	shouting
sheep	smooth
sheet	smoother
sleek	snoop
sleeping	snoopers
sleeps	snoozing
sleepy	snowshoe
sneaked	soil
soap	soldier
speak	soldiers
speed	someone
spree	soon
stairs	sound
steal	sounded
*steamboat	sounds
steep	soup
steering	south
storekeeper	special
straight	spoil

Applicable	Not Applicable
stream	spoon
streets	spoonful
succeed	spread
sweeping	squaw
sweet	squawked
sweetest	squeak
	squeaked
	squeaky
	squeeze
	aqueezed
	squeezes
	squirrel
	squirrels
	squirts
	station
	steady
	steak
	stood
	stool
	stoop
	stories
	storybook
	storybooks
	suit
	surgeon
	sweater
tail	taught
tailor	tear
tea	tears
teach	teaspoon
teacher	television
teachers	their
teaching	theirs
teacup	thief
team	thought
teams	through
teapot	*throughout
teaspoon	tiniest
teeth	took
terrified	tool
thee	tools
though	toot
throat	tooth
tie	toothache
tied	toothbrush
tiptoe	touch
tiptoed	touched
toast	treasure
toasting	trio

Applicable	Not Applicable
towboat	trouble
towboats	troubles
trail	true
trailer	
trails	
train	
trains	
treat	
treated	
treetop	
treetops	
tried	
tries	
	undercooked
	understood
	***upstairs
	vacation
	violin
	violinist
	voice
	voices
waist	warriors
wait	wear
waited	wears
waiter	weather
waiting	weatherman
waits	weathermen
weakness	weighed
weasel	whizz-a-roo
weave	whoo
weaver	whoosh
weaving	without
weeds	wooden
week	wood
weeks	*woodmouse
weird	woods
whee	woof
wheel	wool
wheels	workbook
	worried
	would
	would-be
	wouldn't
	wound
**year	yippie
years	young

Applicable	Not Applicable
	youngest
	your
	yours
	yourself
zookeeper	zoo
zowee	zookeeper

*counted twice

**see procedures

***see procedures

APPENDIX C

Words Found in First and Second Grade Basal Readers

Applicable	Not Applicable
afraid	aboard
agree	about
air	admiration
airline	afternoon
airplane	again
airport	against
although	ahead
appear	aloud
appleseed	already
armloads	applesauce
asleep	arguing
	around
	attention
	*audience
	aunt
	aunty
bait	babies
beach	background
beak	balloon
beam	balloons
beams	bamboo
bean	bathroom
beans	bear
beanstalk	bears
beast	beautiful
beat	beauty
beaver	because
beavers	bedroom
bee	been
beef	being
beer	believe
bees	berries
beetle	birdhouse
beets	blackboard
between	bloom
birdseed	bloomed
bleeding	blooming
boasted	blue
boat	blueberry
boathouse	boar
boats	board
breathe	boathouse

Applicable	Not Applicable
breathing	boiling
breeze	boo
buffaloes	*boo-hoo
	book
	books
	bookstore
	boom
	boomed
	boot
	bought
	bounce
	bounces
	bounded
	boundless
	bread
	breads
	break
	breakfast
	breaks
	breath
	brook
	broom
	brought
	build
	building
	buildings
	built
ceiling	canoe
chain	canoes
chair	captain
chairs	captains
cheating	carpool
cheeks	carriage
cheep	carried
cheer	casually
cheered	caught
cheerful	cereal
cheese	certain
chimpanzee	certainly
clean	check-out
cleaned	chief
cleaners	choice
cleaning	choose
clear	cities
cloverleaf	classroom
coat	cloud
coats	clouds
coffee	clubhouse
creak	clue

Applicable	Not Applicable
creaky	*cock-a-doodle-doo
cream	coin
creature	coins
creek	collection
creeping	confusion
creeps	construction
cried	cooed
cries	cooing
croak	cook
croaked	cooked
	cookers
	cookie
	cookies
	cooking
	cooks
	cool
	cornfield
	couch
	cougar
	cough
	coughed
	could
	couldn't
	count
	counted
	counter
	country
	countryside
	courage
	course
	cousins
	crouched
	curtain
	cutout
dear	dandelions
deep	dangerous
deeper	dark-looking
deer	daughter
die	daybreak
died	dead
**disappeared	delicious
dough	dial
doughnuts	dialed
downstairs	diamonds
downstream	dinosaur
dream	direction
dreamed	disappoint
dreaming	disappointed
dried	does

Applicable	Not Applicable
dries	doesn't
	doghouse
	dogwood
	doing
	door
	doorbell
	doors
	doorstep
	doorway
	double
	dreadful
	drooped
each	early
eagerly	earn
eagle	earned
ear	earth
eardrum	*earthquake
ears	eight
easy	eighteen
eat	electrician
eaten	electricians
eater	enemies
eating	enough
eats	
eel	
eighteen	
either	
exclaimed	
explain	
explained	
failed	***fair
**fear	fairy
feat	families
feed	famous
feeding	fault
feel	feather
feeling	feathers
feelings	field
feet	fields
fleet	fierce
flies	firehouse
float	fishook
floated	flood
floats	floor
free	floorman
freezer	flour
fried	food
	foods

Applicable	Not Applicable
	fool
	foolish
	foot
	football
	forehead
	found
	four
	fourth
	friend
	friendly
	friends
	fruit
	fruits
	funny-looking
gee	giant
geese	giants
goat	gingerbread
goats	glacier
goes	gloomy
grain	glue
greedy	going
green	good
greens	good-by
	good-day
	good-for-nothing
	good-for-something
	goodness
	good-night
	goods
	goose
	great
	great-grandfather
	greatest
	ground
	grounder
	groundhog
	groundhogs
	group
	grouping
	grouse
	guard
	guarding
	guards
	guess
	guessed
	guide
hair	handkerchief
haircuts	hardheaded

Applicable	Not Applicable
heals	haunted
heap	head
hear	headlight
hears	heads
heat	*healthier
hee-haw	heard
heel	heart
heels	heartily
high-heeled	heavy
house-boat	henhouse
	hoo
	hook
	hooked
	hooks
	hooray
	hoot
	hooted
	hooting
	hound
	hour
	hours
	house
	houseboat
	houseboy
	houses
	hurried
ice-cream	idea
indeed	ideas
	impatient
	indoor
	instead
jeans	join
jeep	joined
	journey
	***juicy
keep	kangaroo
keeper	
keeps	
knee	
knee-high	
kneel	
knees	
laid	language
lead	laugh
leaders	laughed
leaf	laughing
league	laughs

Applicable	Not Applicable
lean	laughter
leaned	laundromat
leans	laundry
leap	league
leaped	learn
leash	learned
least	leather
leave	leis
leaves	librarian
leaving	lighthouse
lie	lion
lies	lions
load	look
loads	looked
loaf	looking
	*lookout
	looks
	loom
	looping
	loose
	loud
	louder
	loudly
	lunchroom
maid	make-believe
maids	makeup
mail	meadow
mailbox	measuring
mailboxes	mention
mailman	meow
main	moo-oo
meals	moon
mean	moonlight
means	*mountain
measles	mouse
meat	mousedom
meet	mouth
meeting	mushroom
meetings	musicians
moaned	
mohair	
monorail	
multiplied	
nails	national
**near	neighbor
nearby	*neighborhood
nearer	neighbors
nearest	nervous
nearly	nice-looking

Applicable	Not Applicable
neat	noise
need	noises
needed	noisy
needles	noodles
needs	notebook
nineteen	
oak	oars
	ocean
	oil
	one-room
	ouch
	ought
	our
	ours
	out
	*outdoors
	outside
	overlooked
paid	***pair
pail	pairs
paint	pause
paintbrush	patio
painted	peasant
painter	peashooter
painters	penguin
painting	pennies
paintings	piano
paints	piece
parakeet	pigeon
parakeets	pigeons
peace	playground
peaceful	pleasure
pea	pocketbook
peanut	poem
peanuts	poet
peas	point
peashooter	pointer
peek	pointing
peeked	points
peep	ponies
peeped	poodle
peeping	poof
people	pool
pie	poor
pies	portrait
plain	pound
please	pounded
pleased	pounding

Applicable	Not Applicable
potatoes	poured
pried	prettiest
	proud
	proudly
	puppies
	quack
	quacking
	quail
	quart
	quart-size
	queen
	queer
	question
	questions
	quick
	quickly
	quiet
	quieter
	quietly
	quilt
	quit
	quite
	quitter
rain	racoon
*raincoat	radio
raindrop	read
rained	ready
raining	real
rains	really
raised	reflection
raisins	reservation
reach	roof
reached	rooftop
read	rooftops
reading	room
reason	rooms
remaining	rooster
repair	root
repairing	roots
repeated	rough
rescued	round
road	roundest
roadbed	roundness
roar	roundup
roared	route
sail	sad-looking
sailed	said
sailor	satisfaction

Applicable	Not Applicable
sailors	sauntered
scream	school
screamed	*schoolbooks
screaming	schoolgirls
screams	*schoolhouses
sea	schools
seal	schoolyard
seashells	scientist
seaside	scientists
seat	scurried
seatbelt	search
seats	searched
*seaweed	self-portrait
see	self-portraits
seed	shoe
seeding	shoemaker
seeds	shoes
seeing	shoeshine
seek	shook
seem	shoot
seemed	shoots
seems	should
seen	shoulders
sees	shout
seesaw	shouted
shear	shouting
sheared	smooth
shears	smoother
sheep	snoop
sheet	snoopers
sleek	snoozing
sleep	snowshoe
sleeping	soil
sleeps	soldier
sleepy	soldiers
snail	someone
sneaked	soon
soap	sound
speak	sounded
speed	sounds
spree	soup
stairs	south
steal	special
steam	spoil
*steamboat	spoon
steel	spoonful
steep	spread
steering	squaw
storekeeper	squawked
straight	squeak
stream	squeaked

Applicable	Not Applicable
street	squeaky
streets	squeeze
succeed	squeezed
sweeping	squeezes
sweet	squirrel
sweetest	squirrels
	squirts
	station
	steady
	steak
	stood
	stool
	stoop
	stories
	storybook
	storybooks
	stout
	suit
	suitcase
	surgeon
	sweater
tail	taught
tailor	tear
tails	tears
tail-wagging	teaspoon
tea	television
teach	their
teacher	theirs
teachers	thief
teaching	thought
teacup	through
team	*throughout
teams	tiniest
teapot	too
teaspoon	took
teeth	tool
terrified	tools
thee	toot
though	tooth
three	toothache
throat	toothbrush
tie	touch
tied	touched
tiptoe	treasure
tiptoed	trio
toad	trouble
toast	troubles
toasting	true
towboat	

Applicable	Not Applicable
towboats	
trail	
trailer	
trails	
train	
trains	
treat	
treated	
treatment	
tree	
trees	
treetop	
treetops	
tried	
tries	
untie	undercooked
	understood
	***upstairs
	vacation
	violin
	violinist
	voice
	voices
waist	warriors
wait	wear
waited	wears
waiter	weather
waiting	weatherman
waits	weathermen
weakness	weighed
weasel	whizz-a-roo
weave	whoo
weaver	whoosh
weaving	without
weeds	wooden
wee	wood
week	*woodmouse
weeks	woodpecker
weird	woods
wheat	woof
whee	wool
wheel	workbook
wheels	worried
	would
	would-be
	wouldn't
	wound

Applicable	Not Applicable
**year	yippie
years	you
	you'd
	young
	youngest
	your
	yours
	yourself
zookeeper	zoo
zowee	zookeeper

*counted twice
**see procedures
***see procedures